

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remain(s) under examination in the application is presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or fewer characters; and 2. added matter is shown by underlining.

1-21. (Cancelled).

22. (Currently Amended) An adapter for coupling an ~~object eye~~ eye to be treated in ophthalmic surgery with a laser treatment device comprising a scanning device for scanning a laser beam, the adapter comprising:

an adapter input side, ~~the adapter~~ being fixable relative to the laser treatment device via a locking mechanism;

~~the adapter being capable of transmitting the laser beam to the object along~~ an adapter beam path,

a scanned region being part of the adapter input side, wherein the laser beam having been supplied to the adapter input side and scanned over a region by the scanning device; is transmitted along the adapter beam path to the eye, and

a reference structure, the reference structure being located in the adapter beam path such that the reference structure can be illuminated by laser radiation being scanned by over the ~~scanning scanned device across the region;~~ wherein ~~a position of~~ the reference structure is ~~optically detectable from absorption adapted to absorb or reflection of~~ the laser radiation ~~[[by]]~~ to make the reference structure optically detectable; and

wherein the adapter can be brought into contact with the ~~[[object]]~~ eye to position the ~~object eye~~ eye relative to the laser treatment device and wherein the reference structure comprises marking structures which encode information about the adapter.

23. (Canceled).

24. (Canceled).

25. (Currently Amended) The adapter as claimed in Claim 22, further comprising an adapter output side, through which laser radiation supplied to the region of the adapter input side exits and which can be brought into contact with ~~a deformable surface~~ the cornea of the ~~object eye~~ and thereby imparts a desired shape to the ~~deformable surface~~ cornea.

26. (Canceled).

27. (Canceled).

28. (Currently Amended) The adapter as claimed in Claim ~~27~~ 22, wherein the ~~reference~~ marking structure comprises spatial zones in which are located within the adapter beam path, and which differ from a remainder of the adapter beam path in at least one optical property.

29. (Previously Presented) The adapter as claimed in Claim 28, wherein the optical property comprises refractive index.

30. (Currently Amended) The adapter as claimed in Claim 22, wherein the adapter beam path ~~at least partially comprises~~ apart from the reference structure consists of a material which is transparent to the laser radiation.

31. (Currently Amended) The adapter as claimed in Claim 25, further comprising a substantially cylindrical or substantially frustoconical body, one end surface of which acts as the adapter output side, the adapter output side conforming to the desired shape of the ~~deformable~~ surface cornea.

32. (Previously Presented) The adapter as claimed in Claim 25, further comprising a substantially cylindrical or substantially frustoconical body, one end surface of which acts as the adapter input side.

33. (Previously Presented) The adapter as claimed in Claim 22, further comprising a flange for engagement to the locking mechanism.

34. (Currently Amended) The adapter as claimed in Claim 22, further comprising a suction portion for attachment to the ~~object~~ eye.

35. (Currently Amended) The adapter as claimed in Claim ~~27~~ 22, wherein the information encoded includes the desired shape defined by the adapter output side.

36. (Currently Amended) The adapter as claimed in Claim ~~35~~ 22, wherein the information encoded includes refractive properties of the adapter output side.

37. (Previously Presented) The adapter as claimed in Claim 22, wherein the adapter comprises a contact glass for eye surgery.

38. (Currently Amended) Laser treatment device emitting a laser beam and comprising:

a laser emitting a laser beam adapted for treating an object;

a beam scanning unit for scanning the laser beam over ~~an~~ the object to be treated:

an adapter, having an adapter input side, the adapter being fixable relative to the laser treatment device via a locking mechanism,

the adapter being capable of being brought into contact with the object to position the object relative to the laser treatment device, wherein the adapter ~~transmits the laser beam to the object along an adapter beam path,~~ comprises an adapter beam path and a scanned region being part of the adapter input side, wherein the laser beam having been ~~supplied to~~ scanned over the adapter ~~input side by the laser treatment device and scanned over a scanning region by the beam scanning unit~~ is transmitted along the adapter beam path to the object;, and a reference structure located in the adapter beam path ~~within the scanning region such that the reference structure can be illuminated by the laser beam scanned by the beam scanning unit;~~

a control unit controlling the laser to operate in an illuminating mode; and

a detecting unit for optical detection of the reference structure illuminated by the laser beam; ~~and emitted in the illuminating mode,~~

a wherein the control unit, which receives output from the detecting unit and controls in the illuminating mode the beam deflecting unit when illuminating to scan the laser beam over the scanned region such that the reference structure is illuminated by the laser beam and determines an actual position of the adapter on the basis of the actual scanning position of the scanned laser beam and the output of the detecting unit, and which considers the actual position when controlling the beam deflecting unit during the illuminating mode.

39. (Currently Amended) The laser treatment device as claimed in Claim 38, wherein the control unit ~~considers a difference between a desired position of the adapter and the actual position of the adapter when controlling the beam deflecting unit~~ controls the laser in the illuminating mode such that the laser beam has no machining effect to the adapter.

40. (Previously Presented) The laser treatment device as claimed in Claim 39, wherein the control unit determines a difference between the desired position and the actual position of the adapter and blocks treatment if the difference exceeds a threshold value.

41. (Currently Amended) A laser treatment device for application of energy of a laser beam to a deformable surface of an object, the laser treatment device comprising:

a laser emitting the laser beam;

a beam deflecting unit that scans the laser beam over the object to be treated:

an adapter having an adapter input side, which can be fixated via a locking mechanism;

~~the adapter being capable of transmitting the laser beam to the object along~~ comprising an adapter beam path, and a scanned region being part of the adapter input side, wherein said laser beam having been supplied to scanned over the adapter input side and scanned over a scanning region by the beam-deflecting unit is transmitted along the adapter beam path to the object and the adapter including a reference structure, the reference structure being located in the adapter beam path within the scanning region and optically illuminatable by laser radiation scanned across the scanning region;

the adapter including an adapter output side which can be brought into contact with the deformable surface to position the object relative to the laser treatment device and which imparts a desired shape to the deformable surface when the adapter is in contact with the object, and wherein the reference structure comprises marking structures which encode information about the adapter;

a control unit controlling the laser to operate in an illuminating mode; and

a detecting unit for optical detection of the reference structures illuminated by the laser beam emitted in the illuminating mode, and

a wherein the control unit ~~which~~ receives output from the detecting unit, controls in the illuminating mode the beam deflecting unit to scan the laser beam over the scanning region to illuminate the reference structure, determines the information about the adapter ~~and considers the information when controlling the beam deflecting unit.~~

42. (Previously Presented) The laser treatment device as claimed in Claim 41, further comprising a pulsed treatment laser for an ophthalmic procedure, wherein the object comprises the cornea, and the control unit controls the beam deflecting unit and the treatment laser such that the laser beam generates optical breakthroughs at predetermined locations in the cornea and, in doing so, considers the desired shape of the surface of the cornea, and wherein the desired shape is identified by said information.

43. (Currently Amended) The laser treatment device as claimed in Claim 41, ~~further comprising~~ wherein the laser is a pulsed treatment laser for an ophthalmic procedure and ~~by comprises~~ a device for attenuating laser beam energy to allow in the illuminating mode to avoid any machining effect to the adapter when optically detection of detecting the reference structure.

44. (New) The laser treatment device as claimed in Claim 38, wherein the control unit considers the determined actual position when controlling the beam deflecting unit.

45. (New) The laser treatment device as claimed in Claim 41, wherein the control unit considers the information when controlling the beam deflecting unit.

46. (New) The laser treatment device as claimed in Claim 38, and wherein the reference structure comprises marking structures which encode information about the adapter.



47. (New) The laser treatment device as claimed in Claim 41, and wherein the reference structure comprises marking structures which encode information about the adapter.